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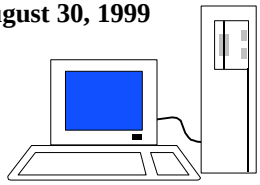

FACT SHEET
Major Breakthroughs in PC Power Management Technology

Responding to concerns from Information Technology (IT) managers, a major breakthrough in power management technology has been reached with the full participation of leading companies and U.S. EPA's ENERGY STAR Program. Industry experts believe these new power management features will solve many of the technical challenges of the past, while providing dramatic improvements in energy efficiency and performance. This breakthrough was driven by new, more aggressive energy efficiency specifications established for ENERGY STAR-qualified computers, and marks a milestone in the ongoing government/industry effort to address today's technology needs. EPA's ENERGY STAR Program works voluntarily with manufacturers to design and market energy efficient products and to educate the public about their benefits.

Marked Advancement: Power Management technology, or a computer's "sleep mode" feature, has always been sound. However, rapid changes in PC technology (e.g. intranets & internets) and networks quickly outgrew existing Power Management capabilities. EPA and computer manufacturers have worked hard to develop a different energy-saving solution, compatible with the evolution of computers—one that's now available through today's technologies. The following chart looks at the "before and now" of Power Management, and dispels some lingering myths.

◆ ***Before***	◆ ***Now***
1. Computers took a long time to exit sleep mode—to "wake up."	1. With IAPC (Instantly Available PC) design recommendations manufacturers can now develop computers that go to extremely low-power modes while awakening instantaneously.
2. Power Management grew incompatible with the rapidly growing advancements in computers.	2. Today, Power Management is incorporated at the design level. Mission critical workstations can support it.
3. Power Management caused accessibility problems and computer crashes.	3. Today this feature is based on open industry standard specifications and interacts seamlessly with hardware and software.
◆ ***Myth***	◆ ***Fact***
1. It's hard to activate Power Management.	1. It is simple to activate through options on your desktop. Most computers already have it enabled.
2. Power Management on a hard-drive reduces the life of the hardware.	2. Hard drives today fully support the feature. They are set to stop "spinning" when the computer has been left idle for some time. A cooler-running hard drive prolongs the life of the unit.
3. If I have a screen saver, I'm saving energy.	3. Screen savers do not save money on utility bills or use less energy. Your monitor is still fully active when a screen saver is in use.

"Business users will benefit from lower average power consumption – up to a 60 percent average power saving…Users will no longer be required to make critical trade-offs between system performance, connectivity and efficient power saving."
-David Chan, Strategic Initiatives Manager, **Intel Corporation**

◆ **The latest Power Management technology:** Power management is fully integrated into the design of all computers sold today. However, companies like Microsoft, Intel and Toshiba are doing even more. Under a specification called ACPI (Advanced Configuration and Power Interface), these companies are implementing technology that allows computers to control the power for each of their individual devices. For example, an ACPI compliant fax card will go into a virtually zero power consumption state when not in use, using only a trickle of power to monitor wake-up events. When a wake-up request is received, the modem is returned to active mode; upon completion, the modem drops back into a low power state. Rather than using about 150 watts to play a CD on your computer, ACPI can reduce your energy use to less than 25 watts by only supplying power to the CD component. In another application, Intel's IAPC (Instantly Available PC) model reduces PC energy use to less than 10 watts in sleep mode, while remaining fully connected to the network.

◆ **Better LAN and Internet Connections:** In its initial form, Power Management cut off power to the computer subsystem (includes motherboard and the cards on it), but not to the logic circuit. This ensured that the computer went to "sleep" while retaining enough intelligence to wake up when required. Simple in its application, this solution did not address advances such as LAN and Internet. A computer on a LAN could not go to sleep without losing its connection with the server. Power Management and network connectivity became mutually exclusive. Over the last couple of years, manufacturers of processors, memory, and other components have improved their ability to understand and support power management. Power Management has moved from the initial BIOS-determined cut-off to intelligent control of power consumption by the operating system.

◆ **Savings for equipment left on all day and night:** When you leave a computer on at all times without enabling its Power Management feature, it remains at full power—wasting a lot of energy and money. With these latest advances in technology, managers can meet all performance and remote connection needs for their business, while still saving energy.

◆ **Saving money and the environment:** The electricity used by office equipment costs businesses and consumers $6 billion on utility bills each year. As much as *half* of that money may be wasted when equipment stays at full power when not in use. EPA and industry sources estimate that the "sleep" features on these products will save U.S. consumers $2.7 billion on their utility bills next year alone. At the same time, these features will significantly reduce air pollution associated with electricity use.

"*Continual improvement in energy efficiency of IBM's computers, monitors, and printers through design and power management features is a key ingredient in helping our customers reduce the total cost of ownership…this also helps the environment by minimizing demand on electricity.*" – Mary Ann Flandera Christie, Program Manager, **IBM**

For more information, contact computer manufacturers or EPA directly.

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